"बिजनेस पोस्ट के अन्तर्गत डाक शुल्क के नगद भुगतान (बिना डाक टिकट) के प्रेषण हेतु अनुमत. क्रमांक जी.2-22-छत्तीसगढ़ गजट / 38 सि. से. भिलाई, दिनांक 30-05-2001."

पंजीयन क्रमांक
"छत्तीसगढ़/दुर्ग/09/2013-2015."

# छत्तीसगढ़ राजपत्र

## (असाधारण)

## प्राधिकार से प्रकाशित

क्रमांक 407 ] रायपुर, मंगलवार, दिनांक 7 नवम्बर 2016—— कार्तिक 16, शक 1938

CHHATTISGARH STATE ELECTRICITY REGULATORY COMMISSION
Vidhyut Niyamak Bhawan, Irrigation Colony, Shanti Nagar, Raipur

Raipur, the 7th November 2016

**No. 74/CSERC/2016.–** In exercise of the powers conferred by Section 181 read with sub- clause (i) of clause (d) of sub-section (2) of section 39, sub-clause (i) of clause of section 40, section 66, and clause (i) of sub-section (2) and clause (c) of sub-section (1) of section 86 of the Electricity Act 2003, the Chhattisgarh State Electricity Regulatory Commission hereby makes the following Regulations :-

**Chhattisgarh State Electricity Regulatory Commission (Intra-state Availability Based Tariff and Deviation Settlement Mechanism) Regulations, 2016.**

CHAPTER - 1

## PRELIMINARY

1. **PREAMBLE:-**The National Electricity Policy (NEP) envisages implementation of the Availability Based Tariff (ABT) at State level to establish a credible settlement mechanism for Intra-day power transfers among Intra-State Entities. As per the Tariff Policy, this framework should be extended to generating stations (including Grid connected Captive Plants of capacities as determined by the State Electricity Regulatory Commission). These Regulations has been specified to give effect to the intentions of Section 5.7.1(b) and (d) of the National Electricity Policy as well as section 6.2(1) and 6.3 of the Tariff Policy. Central Electricity Regulatory Commission has notified Deviation Settlement Mechanism and Related Matters Regulations, 2014 and Central Electricity Regulatory Commission (UI charges and related matters), Regulations, 2009 have been repealed. In view of the aforesaid, the Chhattisgarh State Electricity Regulatory Commission (Intra-state Availability Based Tariff and Deviation Settlement) Regulations, 2016 are notified.

**2. SHORT TITLE, EXTENT OF APPLICATION AND COMMENCEMENT**

2.1. These Regulations may be called the "Chhattisgarh State Electricity Regulatory Commission (Intra-state Availability Based Tariff and Deviation Settlement Mechanism) Regulations, 2016".

2.2. These Regulations shall apply within the geographical area of the State of Chhattisgarh and shall apply to all Inter / Intra-State Entities in Chhattisgarh in a manner as specified in these Regulations.

2.3. These Regulations shall come into force from the first day of the month succeeding the month of publication in the Official Gazette of the State of Chhattisgarh.

3. **DEFINITIONS:-** In these Regulations, unless the context otherwise requires:

3.1. **"Act"** means the Electricity Act, 2003 (36 of 2003) or any amendments made to the same or any succeeding enactment thereof;

3.2. **"Absolute Error"** shall mean the absolute value of the error in the actual generation of solar and wind generators with reference to the scheduled generation and the 'Available Capacity' (AvC), as calculated using the following formula for each 15 minute time block:

Error (%) = 100 X [Actual Generation– Scheduled Generation] / (AvC)

3.3. **"Actual Drawal"** in a time-block means electricity drawn by a buyer, as the case may be, measured by the interface meters;

3.4. **"Actual Injection"** in a time-block means electricity generated or supplied by the seller, as the case may be, measured by the interface meters;

3.5. **"Available Capacity (AvC)"** for wind or solar generators is the cumulative capacity rating that are capable of generating power in a given time-block;

3.6. **"Average Pooled Cost of Power Purchase (APPC)"** would have the same meaning as specified in the CSERC RPO Regulations

3.7. **"Buyer"** means a licensee or consumer or captive user or company located within the State, receiving power by using the State-grid including such system when it is used in conjunction with inter-State transmission system and whose scheduling and/or metering and energy accounting is coordinated by the SLDC;

3.8. **"Central Commission" or "CERC"** means the Central Electricity Regulatory Commission referred to in section 76 of the Act;

3.9. **"Commission"** means the Chhattisgarh State Electricity Regulatory Commission referred to in sub-section (1) of section 82 of the Act;

3.10. **"Day"** means a continuous period starting at 00.00 hours and ending at 24.00 hours;

3.11. **"Declared Capacity"** means the capability of a seller in Mwh in proportion to their schedule power at interface point with the State Grid.

3.12. **"Despatch Schedule"** means the ex-Power Plant net Mega Watt and Mega Watt Hour output of a Generating Station, Scheduled to be exported to the Grid from time to time;

3.13. **"Deviation"** in a time-block for a seller means its total actual injection minus its total scheduled generation and for a buyer means its total actual drawal minus its total scheduled drawal;

3.14. **"Deviation Charges"** means the charges computed as per the rates corresponding to average Frequency of the grid in a 15-minute time block as specified by the Central Electricity Regulatory Commission from time to time;

3.15. **"Deviation Settlement Mechanism Regulations"** means Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2014 including any subsequent amendments thereof;

3.16. **"Distribution Licensee or Discom"** means a License authorized to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply;

3.17. **"Drawal Point"** means connection point(s) at which electricity is drawn from the State-Grid by the State-Grid user;

3.18. **"Drawal Schedule"** means the ex-Power Plant, Mega Watt that a Discom or a Buyer is scheduled to receive from an electricity generating station, including bilateral and collective transactions from time to time;

3.19. **"Ex-Power Plant"** means net Mega Watt / Mega Watt hour output of an electricity generating station, after deducting Auxiliary consumption and Transformation losses;

3.20. **"Gaming"** in relation to these regulations, shall mean an intentional mis-declaration of declared capacity /schedule by any seller in order to make an undue commercial gain through Deviations Charge.

3.21. **"Grid"** means the high voltage backbone system of inter-connected Transmission lines, Sub-Stations and Generating plants;

3.22. **"Indian Electricity Grid Code Regulations (IEGC)"** means the Grid Regulations specified by the Central Electricity Regulatory Commission under Clause (h) of Sub-section(1) of Section 79 of the Act;

3.23. **"Intra-state Entity"**- Intra-state entity, means a person whose scheduling and energy accounting is coordinated by State Load Despatch Centre or any other authorized state agency.

3.24. **"Injection Point"** means connection point(s) at which electricity is injected into the State-grid by the State-grid user;

3.25. **"Interface meters"** means meters installed at interface point as defined by the Central Electricity Authority (CEA) under the CEA (Installation and Operation of Meters) Regulations, 2006 as amended from time to time;

3.26. **"Losses"** means the energy losses in percentage for the intra-state transmission system or distribution system as specified by the Commission from time to time;

3.27. **"Month"** means a calendar month as per the British Calendar;

3.28. **"Multiple supply Consumer or MSC"** means a consumer who has a supply agreement with the distribution licensee in whose area of supply the consumer is located and also has a supply agreement with a person other than the distribution licensee under the Open Access Regulations and includes a consumer of a distribution licensee who also avails of wheeling facility for carrying the electricity from his captive generating plant to the destination of its own use;

3.29. **"Net Drawal Schedule"** means the drawal schedule of the Discom or a Buyer after deducting the apportioned Transmission Losses (estimated);

3.30. **"Open access customer"** means a consumer permitted to receive supply of electricity from a person other than the distribution licensee of his area of supply, or a generating company (including captive generating plant) or a licensee or a captive user who has availed of or intends to avail of long-term open access or medium term open access or short-term open access, as the case may be;

3.31. **"Single supply Consumer or SSC "** means a consumer including captive user not having a supply agreement with the distribution licensee in whose area of supply the consumer is located, but availing or intending to avail supply of energy under the Open Access Regulations from a person other than that distribution licensee of the area

3.32. **"Seller"** means a generating station including captive generating plant (selling directly or through trader) or licensee or a company located within the State, injecting power into the State-grid including such system when it is used in conjunction with inter-State transmission system and whose scheduling and/ or, metering and energy accounting is coordinated by SLDC;

3.33. **"State Load Despatch Centre (SLDC)"** means the centre established under Sub-section(1) of Section 31 of the Act;

3.34. **"State"** means the State of Chhattisgarh;

3.35. **"State Energy Account (SEA)"** means monthly State Energy Account prepared by State Load Despatch Centre for the billing and settlement of Capacity charges, Energy charges and incentives, if any, applicable;

3.36. **"State Deviation Settlement Mechanism Account (SDSMA)"** means weekly State Deviation Settlement Mechanism Account prepared by State Load Despatch Centre for the billing and settlement of Deviation charges;

3.37. **"State Grid"** means the intrastate transmission network owned by the State Transmission utility,

transmission licensee and/or the network of any other person who has been granted license by the Commission to establish or operate distribution system within the State;

3.38. **"State Grid User"** means buyer and/or seller;

3.39. **"State Transmission Utility (STU)"** means Chhattisgarh State Power Transmission Company Limited;

3.40. **"Time Block"** means Block of 15-minute each for which special energy meters record specified electrical parameters and quantities with first Time Block starting and 00.00 hours;

3.41. **"Week"** means a period of consecutive seven days commencing from 00.00 hours on the Monday and ending at 24.00 hours on following Sunday as per the British Calendar;

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The words and expressions used in these Regulations and not defined herein but defined in the Act shall have the meaning assigned to them under the Act and other Regulations notified by the Commission, provided that when a word or phrase is used by the Commission in a specific context, the meaning applicable in that specific context, shall prevail and the generic definition given above may not be applicable.

CHAPTER – II

## AVAILABILITY BASED TARIFF

4. The tariff under the ABT regime will have three components namely the capacity charge, the energy charge and the Deviation Settlement charge.

(a) **Fixed charges/capacity charges:** Capacity charges of the generators are payable on the capacity allocated and are linked to 'Availability' of the generating stations declared on daily basis in MW.

(b) **Energy charges/variable charges:** Energy charges or variable charges are payable on the scheduled energy irrespective of actual drawal.

Computation of capacity charges and energy charges shall be governed by Regulations 41 and 42 of the CSERC (Terms and Conditions for determination of tariff according to Multi- year Tariff Principles and methodology and procedure for determination of expected revenue from tariff and Charges) Regulations, 2015 or its subsequent amendments or enactments.

(c) **Deviation Charges:** Variation between actual generation and scheduled generation or actual drawal and scheduled drawal shall be accounted for through Deviation Settlement Charges and are dependent on the average frequency prevailing at that time-block.

5. **APPLICABILITY OF INTRA-STATE ABT**

5.1. **Generating Company/Captive generating plant**

(a) **State Generating Stations:** To all generating stations owned by Chhattisgarh State power Generating Company Ltd (CSPGCL) except Hasdeo Bango Hydel power plant.

(b) **Conventional fuel based Generating Plants:** All conventional fuel based power generating companies including Captive Generating Plant (CGP) located in the State and who have contracted to supply long-term and medium-term power to distribution licensees in State at tariff determined under Section 62 of the Act and under Section 63 of the Act.

(c) Renewable energy based generating plant-All renewable energy based power generating companies including bio-gas, municipal solid waste based generating stations etc. of installed capacity more than 5 MW located in the State) and who have contracted to supply long-term and medium-term power to distribution licensees in State at tariff determined under Section 62 of the Act and under Section 63 of the Act.

(d) All the generating stations, CGP (Selling directly or through electricity traders or through exchange) who intend to supply power to the distribution licensee of the State under short-term contracts.

(e) All the generating stations including renewable energy based power plants/CGP (Selling directly or through electricity traders or through exchange) who intend to supply power outside the State under long-term, medium-term or short-term contracts.

(f) All the generating stations including renewable energy based power plants/CGP (Selling directly or through electricity traders or through exchange) who intend to supply power to consumers under long-term, medium-term or short-term contracts.

5.2. **Distribution Licensees:** The distribution licensee shall be covered by State ABT if it draws power by using the State-grid.

5.3. **Consumers/captive users:** All consumers /captive users located within the State and who intend to purchase /receive power through State grid shall be governed by intrastate ABT only in respect of electricity supplied to him by the generating station/ licensee governed by inter-state/ intra-state ABT.

5.4. **Applicability of only Deviation Charge Component of the Intra-State ABT**

(a) All SSC procuring power through open access within the State shall be governed by Intra-State ABT only in respect of applicable deviation charges.

(b) All generating companies including RE generator of more than 5 MW & CGP (selling directly or through electricity trader) who have contracted to supply power only to SSC and/or MSC shall be governed by intra-State ABT only in respect of applicable deviation charges.

(c) All generating companies including RE generator of more than 5 MW & CGP (selling directly or through electricity trader) who have contracted to supply power only to licensee or consumers located outside the State shall be governed by intra-State ABT only in respect of applicable deviation charges.

## 6. CHARGES FOR DEVIATION

6.1. The charges for the Deviations for all the time-blocks shall be payable for over drawal by the buyer and under-injection by the seller and receivable for under-drawal by the buyer and over-injection by the seller and shall be worked out on the average frequency of a time-block at the basic rates specified in the CERC (Deviation Settlement Mechanism and related matters) Regulations, 2014 as amended from time to time. Prevailing basic rates are as specified at Schedule-A.

Provided that

(i) the charges for the Deviation for the under drawals by the buyer in a time block in excess of 12% of the schedule or 150 MW, whichever is less, shall be zero.

(ii) the charges for the Deviation for the over-injection by the seller (except RE generators) in a time block in excess of 12% of the schedule or 150 MW, whichever is less, shall be zero.

(iii) Generators injecting power without scheduling shall be considered as unscheduled power. The generators including captive generating plants shall be required to execute an agreement with CSPDCL for supply of such power. Such power shall be paid as per the applicable deviation charges subject to maximum cap rate of Rs 1.50 per unit by CSPDCL. The cost incurred for purchase of such power shall be considered as power purchase cost of CSPDCL.

(iv) The fix charge and energy charge for renewable energy generators shall be paid as per declared schedule. In the event of actual generation of renewable generator being less than the scheduled generation, the deviation charges for shortfall in generation shall be payable by generators to the State DSM Pool as given in Table – 1 below:

**Table – 1: Deviation Charges in case of under injection**

| Sr. No. | Absolute Error in the 15-minute time block | Deviation Charges payable to State DSM pool |
|---|---|---|
| 1 | <= 15% | At the Fixed Rate for the shortfall energy upto for absolute error upto 15% |
| 2 | >15% but <= 25% | At the Fixed Rate for the shortfall energy for absolute error upto 15% + 110% of the Fixed Rate for balance energy beyond 15% and upto 25% |
| 3 | >25% but <=35% | At the Fixed Rate for the shortfall energy for absolute error upto 15% + 110% of the Fixed Rate for balance energy beyond 15% and upto 25% + 120% of the Fixed Rate for balance energy beyond 25% and upto 35% |
| 4 | > 35% | At the Fixed Rate for the shortfall energy for absolute error upto 15% + 110% of the Fixed Rate for balance energy beyond 15% and upto 25% + 120% of the Fixed Rate for balance energy beyond 25% and upto 35% + 130% of the Fixed Rate for balance energy beyond 35% |

Where the Fixed Rate is the applicable rate as determined by the Commission under section 62 of the Act or adopted by the Commission under section 63 of the Act. In case of multiple PPAs, the weighted average of the PPA rates shall be taken as the Fixed Rate. The renewable energy generators shall furnish the PPA rates on affidavit for the purpose of Deviation charge account preparation to SLDC supported by copy of the Order of the Commission.

Fixed Rate for Open Access participants selling power whose tariff is not determined under Section 62 of the Act or adopted by the Commission under Section 63 of the Act, and the captive RE plants shall be the APPC rate at the State level, as may be determined by the Commission from time to time through a separate order.

(v) In the event of the actual generation of renewable generator being more than the scheduled generation, the Deviation Charges for excess generation shall be payable to the RE generators from the State DSM Pool as given in Table – 2 below:

**Table – 2: Deviation Charges in case of over injection**

| Sr. No. | Absolute Error in the 15-minute time block | Deviation Charges payable |
|---|---|---|
| 1 | < = 15% | At the Fixed Rate for excess energy upto 15% |
| 2 | >15% but <= 25% | At the Fixed Rate for excess energy upto 15% + 90% of the Fixed Rate for excess energy beyond 15% and upto 25% |
| 3 | >25% but <=35% | At the Fixed Rate for excess energy upto 15% + 90% of the Fixed Rate for excess energy beyond 15% and upto 25% + 80% of the Fixed Rate for excess energy beyond 25% and upto 35% |
| 4 | > 35% | At the Fixed Rate for excess energy up to 15% + 90% of the Fixed Rate for excess energy beyond 15% and up to 25% + 80% of the Fixed Rate for excess energy beyond 25% and up to 35% + 70% of the Fixed Rate for excess energy beyond 35% |

Where the Fixed Rate is the applicable rate as determined by the Commission under section 62 of the Act or adopted by the Commission under section 63 of the Act. In case of multiple PPAs, the weighted average of the PPA rates shall be taken as the Fixed Rate. The renewable energy generators shall furnish the PPA rates on affidavit for the purpose of Deviation charge account preparation to the SLDC supported by copy of the Order of the Commission.

Fixed Rate for Open access participants selling power whose tariff is not determined under section 62 of Act or adopted by the Commission under section 63 of the Act, and the captive wind or solar plants shall be the APPC rate at the State level, as may be determined by the Commission from time to time through a separate order.

6.2. Inter-State open access transactions: The deviation charges applicable for over injection /under drawal shall be prepared by considering 95% of the Rates specified for Charges of Deviation as specified by the CERC, when these charges are receivable to the Seller/Buyer and the deviation charges applicable for under injection /over drawal shall be prepared by considering 105% of the Rates specified for Charges of Deviation as specified by the CERC, when these charges are payable by the Seller/Buyer.

6.3. Intra-state open access transactions-The deviation charges applicable for over injection /under drawal shall be prepared by considering base Rates specified for Charges of Deviation by the CERC, when these charges are receivable to the Seller/Buyer and the deviation charges applicable for under injection /over drawal shall be prepared by considering base Rates specified for Charges of Deviation by the CERC, when these charges are payable by the Seller/Buyer.

6.4. Entities availing intra-State open access as well as inter-State open access-The charges for deviation including additional charges for deviation shall be levied by considering 95% of the basic rates as specified in clause c) below when these charges are receivable to the State Grid Users, as per regulation 6 & 7 and the charges for deviation shall be levied by considering 105% of the basic rates as specified in clause c) below, when these charges are payable by the State Grid Users, as per regulation 6 & 7

## 7. LIMITS ON DEVIATION VOLUME AND CONSEQUENCES OF CROSSING LIMITS

7.1. The over-drawals / under drawals of electricity by any buyer during a time block shall not exceed 12% of its scheduled drawal or 150 MW, whichever is lower, when grid frequency is "49.70Hz and above

and below 50.10 Hz";

Provided that no over-drawal of electricity by any buyer shall be permissible when grid frequency is "below 49.70 Hz" and no under-drawal of electricity by any buyer shall be permissible when grid frequency is "50.10 Hz and above".

7.2. The under-injection /over-injection of electricity by a seller during a time-block shall not exceed 12% of the scheduled injection of such seller or 150 MW, whichever is lower when frequency is "49.70 Hz and above and below 50.10 Hz";

Provided that –

(i) No under injection of electricity by a seller shall be permissible when grid frequency is "below 49.70 Hz" and no over injection of electricity by a seller shall be permissible when grid frequency is "50.10 Hz and above";

(ii) Any infirm injection of power by a generating station prior to COD of a unit during testing and commissioning activities shall be exempted from the volume limit specified above for a period not exceeding 6 months or the extended time allowed by the Commission subject to ceiling of Cap rates as defined in the CERC (Deviation Settlement Mechanism and related matters) Regulations, 2014 as amended from time to time;

(iii) Any drawal of power by a generating station prior to COD of a unit for the startup activities shall be exempted from the volume limit specified above when grid frequency is "49.70 Hz and above".

(iv) The consumers who have reduced their contract demand to zero and drawing start-up power from grid shall also be exempted from limits of deviations as mentioned above. For such consumers provisions specified in tariff order shall be applicable.
Provided that the limits on deviation volume and consequences for crossing these limits (including the additional charges for deviation) as stipulated under Regulation 7 shall not apply to solar and wind generators.

7.3. In addition to charges for Deviation as stipulated under Regulation 6 of these Regulations, additional charge for Deviation shall be applicable for **over-drawal as well as under-injection** of electricity for each time block in excess of the volume limit specified in Clause 7.1and 7.2 of this regulation **when average grid frequency of the time block is "49.70 Hz and above"** at the rates specified in the table A below in accordance with the methodology specified in these Regulations:

**TABLE –A**

| **When 12% of Schedule is less than or equal to 150 MW** | | |
|---|---|---|
| (i) | For over drawal of electricity by any buyer in excess of 12% and up to 15% of the schedule in a time block | Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (ii) | For over drawal of electricity by any buyer in excess of 15 % and up to 20% of the schedule in a time block | Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (iii) | For over drawal of electricity by any buyer in excess of 20 % of the schedule in a time block | Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (iv) | For under injection of electricity by any seller in excess of 12% and up to 15% of the schedule in a time block | Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (v) | For under injection of electricity by any seller in excess of 15 % and up to 20% of the schedule in a time block | Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (vi) | For under injection of electricity by any seller in excess of 20 % of the schedule in a time block | Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block. |

| When 12% of Schedule is more than 150 MW | | |
|---|---|---|
| (i) | For over drawal of electricity by any buyer is above 150 MW and up to 200 MW in a time block | Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (ii) | For over drawal of electricity by any buyer is above 200 MW and up to 250 MW in a time block | Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (iii) | For over drawal of electricity by any buyer is above 250 MW in a time block | Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (iv) | For under injection of electricity by any seller is above 150 MW and up to 200 MW in a time block | Equivalent to 20% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (v) | For under injection of electricity by any seller is above 200 MW and up to 250 MW in a time block | Equivalent to 40% of the Charge for Deviation corresponding to average grid frequency of the time block. |
| (vi) | For under injection of electricity by any seller is above 250 MW in a time block in a time block | Equivalent to 100% of the Charge for Deviation corresponding to average grid frequency of the time block. |

7.4. In addition to charges for Deviation as stipulated under Regulation 6 of these regulations, Additional Charge for Deviation shall be applicable for over-injection/under drawal of electricity for each time block by a seller/buyer as the case may be when **grid frequency is "50.10 Hz and above"** at the basic rates equivalent to the charges for deviation corresponding to the grid frequency of "below 50.01 Hz but not below 50.0 Hz" as specified in clause 6.1.

7.5. In addition to charges for Deviation as stipulated under Regulation 6of these Regulations, Additional Charge for Deviation shall be applicable for over-drawal or under-injection of electricity when **grid frequency is "below 49.70 Hz"** at the basic rates equivalent to the Charge for Deviation corresponding to the grid frequency of "below 49.70 Hz" as specified in clause 6.1.

Provided that the Commission may specify different rates for Additional Charges for Deviation for over drawals and under injections and for different ranges of frequencies 'below 49.70 Hz'.

7.6. The State Load Despatch Centre shall, on monthly basis, prepare and publish on its website the records of the Deviation Accounts, specifying the quantum of over-drawal/ under-injection and corresponding amount of Charges for Deviation payable/receivable for each buyer and seller for all the time-blocks when grid frequency was "49.70 Hz and above" and "below 49.70" Hz separately.

7.7. Methodologies for the computation of Charges for Deviation and Additional Charges for deviation by seller(excluding solar and wind generators)/ buyer for crossing the volume limits specified for the under-injection / over-drawal and for over-injection / under-drawal in clause (6) & (7) of this Regulation shall be as per Annexure I and Annexure II respectively.

## 8. SCHEDULING AND DESPATCH

8.1. Sellers/Buyers shall have to bear energy loss (transmission loss /or the distribution losses) for their injection /drawal schedules at the interface point with the State Grid.

8.2. For long-term access customers and medium-term open access customers, the provisions of the State Grid Code and the CSERC (Connectivity and Intra-State Open Access) Regulations 2011, as amended from time to time, shall be applicable for declaration of capacity, scheduling and elimination of gaming. The Seller shall submit daily declared capacity and accordingly the Buyers including beneficiary shall submit their requirement to SLDC in 15 minutes time block and by considering these the SLDC/RLDC/PX, as the case may be, shall finalize the injection/drawal schedule.

8.3. The Seller supplying power on short-term shall submit monthly declared capacity and accordingly the Buyers including CSPDCL shall submit their requirement to SLDC in 15 minutes time block and by considering these the SLDC shall finalize the injection/drawal schedule. If the Sellers/Buyers fails to submit the declared capacity/drawal requirement by 23rd of current month for the scheduling of power in next month, then the same shall be considered as zero for all purposes. However, maximum of two

revisions of schedule per month under advance intimation to SLDC and distribution licensee shall be allowed with effect from 00.00 hours of next day. This mechanism shall be followed for short-term power procurement by CSPDCL.

8.4. If the Seller supplies short-term power to distribution licensee and/or MSC/SSC and if such Seller is also a long-term open access customer / medium-term open access customer, then such Seller shall give monthly schedule as per Clause 9.2 of these Regulations for short-term open access so also daily schedule as long-term open access customer/medium-term open access customer as per Clause 9.1 of these Regulations.

8.5. Based on declared capacity given by the Seller and requirement of drawal given by the Buyer, the SLDC shall allocate power and finalize the injection / drawal schedule of the Sellers/Buyers considering the applicable losses.

8.6. In case of day ahead transactions, the declared capacity/schedules shall be conveyed by the seller to SLDC; in one day advance up to 09.00 hrs of the day. The Buyer including beneficiary shall confirm the time-block wise requirement to SLDC in one day advance up to 11.00 hrs of the day. If the no confirmation from Buyer including beneficiary is received within above time limit the SLDC shall consider zero requirement. Accordingly the SLDC shall issue the drawal and injection schedules by 18.00 hrs of the day for the next day. Thereafter, normally no changes shall be registered in the schedule on the day ahead basis.

8.7. To discourage frivolous revisions, SLDC may, at its sole discretion, refuse to accept schedule/capability changes of less than five (5) percent of previous schedule/capability or 0.5 MW whichever is more. The schedule shall not be revised except in case of forced outage of generating unit.

8.8. If, at any point of time, the SLDC observes that there is need for revision of the schedules in the interest of better system operation, it may do so on its own, and in such cases, the revised schedules shall become effective from the 4th time block, counting the time block in which the revised schedule is issued by the SLDC to be the first one.

8.9. It shall be incumbent upon the State-grid-user to declare their schedule /plant capabilities faithfully, i.e. according to their best assessment. In case, it is suspected that they have deliberately over/under declared the schedule/ plant capability contemplating to deviate from the schedules given on the basis of their capability declarations (and thus make money either as undue capacity charge or as the charge for deviations from schedule), the SLDC may ask the State-grid-user to explain the situation with necessary backup data.

8.10. If the scheduling of the State-grid-user has been stopped/ discontinued/ cancelled by SLDC or got cancelled by SLDC on its request to RLDC/NLDC/PX, on "grid –disciplinary" measures, the balance and the subsequent approved transactions and application of the State-grid-user shall be forfeited / cancelled.

8.11. In case of any grid disturbance, scheduled injection of the Sellers and scheduled drawal of the Buyers shall be deemed to have been revised in proportion to their actual generation/drawal for all the time blocks affected by the grid disturbance. Certification of grid disturbance and its duration shall be published by the SLDC in website.

8.12. When for the reason of transmission constraints e.g. congestion or in the interest of grid security, it becomes necessary to curtail power flow on a transmission corridor, the transactions already scheduled may be curtailed by the State Load Despatch Centre. The short-term customer shall be curtailed first followed by the medium-term customers, which shall be followed by the long-term customers and amongst the customers of a particular category, curtailment shall be carried out on pro rata basis.

## 9. ELIMINATION OF GAMING

9.1. Generally the Sellers/Buyers shall ensure that the actual injection/drawal shall be near to the njection/drawal schedule.

9.2. If it is observed that the Sellers is indulging in gaming, then any affected entity or SLDC may intimate the facts with relevant records to the Commission. The Commission on a petition made by any affected entity or SLDC, shall initiate proceedings against any "Seller" on charges of gaming and if required, may order an inquiry in such manner as decided by the Commission. When the charge of gaming is established in the above inquiry, the Commission may, without prejudice to any other action under the Act or regulations there under, disallow any deviation charge receivable by the Sellers/Buyers during

the period of such gaming or may take any other action.

9.3. In case it is observed that a "Seller" has scheduled excess power than the approved quantum of open access in any time block; then no deviation charge shall be receivable by him for excess injection, done on that day and he will have to pay the transmission /wheeling charges as applicable for the excess schedule quantum, for the whole day, at the rate of two times of the transmission charges as applicable. In the case of implemented schedules indicated by the WRLDC for open access transactions, the rounding off of 0.01MWh whether or plus side or minus side shall be ignored and such a case shall not be considered either as excess scheduling or under injection.

9.4. Normally, the distribution licensee shall plan its power purchase to meet the demand of the area of supply. The distribution licensee shall not under draw from the grid until its demand is met i.e. no unscheduled load shedding be done in its area of supply to sell power by under drawing. If such type of case is observed then the distribution licensee shall be liable for suitable action.

9.5. No set off towards deviation charges shall be allowed to open access customers due to load regulatory measures applied or due to any network constraints unless otherwise specifically allowed in these Regulations.

## 10. ENERGY ACCOUNTING AND SETTLEMENT

### Settlement of energy at drawal point in respect of a SSC

10.1. The scheduled drawal (MWh) at drawal point shall be computed for each time block from the scheduled injection (in MW) for such consumer through open access at the injection point considering the energy losses of the State grid (intra-state transmission system and/ or distribution system, as applicable) and the deviation from schedule shall be dealt as per Regulation 7.

10.2. The excess energy consumed, if any, at the drawal point for any time block with reference to scheduled drawal shall be deemed to have been consumed by the consumer from the State grid and shall be treated as deviation and shall be paid by the consumer at the applicable DSM charge corresponding to average frequency of that time block.

10.3. In case, where such a consumer under draws with reference to the scheduled drawal, he shall be compensated at the DSM charge corresponding to average frequency of that time block.

Provided that DSM charge receivable shall be capped as per the APPC of CSPDCL approved by the Commission from time to time.

10.4. For SSC procuring power from solar and wind generators of capacity less than 5 MW, settlement of energy shall be as under:

(a) If there is surplus energy available after set off with SSC consumption in the same 15 minutes time block, it shall be treated as sale to the concerned distribution licensee @ 85% of the generic tariff determined by the Commission for that year.

(b) If SSC consumption is more than energy injected by generator in same time block, the balance energy shall be deemed to have been supplied by distribution licensee and shall have to be paid for as per the terms of the retail tariff order and supply agreement with the distribution licensee.

### Settlement of energy at drawal point in respect of a MSC

10.5. Such a consumer shall have supply agreement with the licensee (either for standby support or for meeting part requirement of his total requirement as may be chosen by the consumer) as also with the "Sellers" for availing power through open access.

10.6. The total scheduled drawal at drawal point shall be computed for each time block considering contract demand (in MVA) with licensee (considering power factor 0.90) and injection schedule for the consumer through Open-Access at the injection point by considering the losses of the State-grid (intra-state transmission system and / or distribution system, as applicable).

10.7. If the total actual drawal exceeds total scheduled drawal (scheduled drawal for the consumer at drawal point for power purchase through open access+ contract demand with licensee), the consumer shall be liable to pay Deviation charges corresponding to average frequency of that time block.

10.8. If the total actual drawal is less than total scheduled drawal (scheduled drawal for the consumer at drawal point for power purchase through open access+ contract demand with licensee), the consumer shall receive the Deviation charges corresponding to average frequency of that time block.

Provided that DSM charges receivable shall be capped as per the APPC of CSPDCL approved by the Commission from time to time.

10.9. For levy of demand charges by distribution licensee; the actual power drawn shall be first set off with contract demand of with distribution licensee and the drawal in excess of contracted demand with distribution licensee will be considered to be supplied through Open Access.

10.10. Energy charges shall be levied by distribution licensee as per tariff on total energy consumed in the time block minus energy consumed towards open access schedule, subject to max of contract demand at 0.9 pf.

10.11. For MSC procuring power from solar and wind generators of capacity less than 5 MW settlement of energy shall be as under:

a) The supply by generator shall be considered as the first supply and the supply in excess of actual open access supply by generator in same time block shall be deemed to have been supplied by distribution licensee and shall have to be paid for as per the terms of the retail tariff order and supply agreement with the distribution licensee.

b) The MSC shall have to pay demand charges as per the retail supply order considering contract demand as summation of contract demand for retail supply agreement and approved open access quantum.

## 11. STATE DSM ACCOUNT (SDSMA)

11.1. The State Load Despatch Centre shall prepare and issue (to all Sellers / Buyers) SDSMA charges to all Sellers/ Buyers as per the modalities and timelines as under:

**(a) Billing Cycle:** The SDSMA billing cycle for all Sellers/ Buyers (except CSPGCL and renewable energy generator) shall be weekly (i.e. Monday to Sunday) and SDSMA billing cycle for CSPGCL and renewable energy generator shall be monthly (calendar month wise)

**(b) Meter Reading:** Meter reading of all meters (as required) for Sellers/ Buyers (except CSPGCL and renewable energy generator) shall be provided by the concerned metering division of CSPTCL/ CSPDCL by every Tuesday of the succeeding week (ending with Sunday) in encrypted (.mrd/.xml) format, through e-mail to SLDC and meter readings of all meters (as required) for CSPGCL and renewable energy generator shall be provided by the concerned metering division of CSPGCL, CSPTCL and CSPDCL by fifth day of the succeeding month for previous calendar month in encrypted (.mrd/.xml) format, through e-mail to SLDC. The concerned metering division of CSPGCL, CSPTCL and CSPDCL shall ensure authenticity of the meter readings/ consumption as recorded in meters (and communicated to the SLDC) by testing of meters and metering equipments, as per CEA metering Regulation 2006, as amended from time to time.

**(c) Implemented Schedule:** For preparation of SDSMA Statement, the SLDC shall consider implemented schedule as available in the WRLDC and SLDC websites and implemented schedule received from Power Exchanges through E-Mail. SLDC shall be responsible for timely (as per Grid Code) updation and uploading of the implemented schedule in respect of all Sellers/ Buyers in the SLDC website.

**(d) Frequency:** For preparation of SDSMA statement, SLDC shall consider frequency as considered by WRPC in the DSM statement issued to CSPDCL, as available in WRPC websites.

**(e) Confirmation of Meter-reading and Schedule:** Since meter reading and implemented schedule data are received in encrypted softcopy, so to minimize the possibility of error, before processing of the SDSMA bill, SLDC shall again verify data of schedule and energy injection/drawal from the concerned Sellers/ Buyers and concerned metering Dn. of CSPGCL/ CSPTCL/ CSPDCL. The Sellers/ Buyers and the concerned metering Dn. of CSPGCL/ CSPTCL/ CSPDCL shall verify and confirm the required information within 2 working days from the date of receipt of such data from SLDC through email.

(f) **Processing of SDSMA Bill:** SLDC shall prepare SDSMA bill within 3 working days after the receipt of all related data from all concerned as above. Further, SLDC shall issue the SDSMA bill to all concerned through hardcopy and softcopy. The softcopy of the SDSMA bill shall be made available by publishing it on the SLDC website from the date of issue of SDSMA bill. The soft copy of the SDSMA shall broadly contain the following information:

(i) Details of Deviation Settlement Method Tariff Structure currently in force;

(ii) Details of Day-wise and total Deviation transactions for each Entity (details shall include Scheduled Energy, actual Energy, Charges for Deviation and Additional Charges for Deviation);

(iii) Summary table listing all paying Entities (along with net amount payable by them) on left-hand side and all receiving Entities (along with net amount receivable by them) on right-hand side;

(iv) Details of time-blocks of suspension of Deviation due to transmission constraints and Grid disturbances;

(v) Any other details which State Load Despatch Centre feels necessary to complete the Deviation Settlement Method Account.

11.2. Comparison of the actual drawal and scheduled drawal for each buyer will be carried out to calculate deviation. The deviation energy of each buyer is calculated by deducting scheduled drawal from the actual drawal on 15-minute basis. Similarly, deviation energy of each seller is calculated by deducting scheduled injection from the actual injection on 15- minute basis. This deviation energy is then converted into Deviation charge by multiplying the deviation rate for each time block corresponding to average Grid frequency in that time block. Similar calculations are to be carried out for all the time blocks in a Week.

11.3. Settlement of Deviation charges shall be done through "State DSM Pool Account" to be operated by CSPDCL. The CSPDCL shall open and maintain a separate Bank Account with a Nationalized/Scheduled Commercial Bank.

11.4. Payment of Deviation charges shall have a high priority and the concerned Entity shall pay the indicated amount, within ten days from the date of issue of State Deviation Settlement d Mechanism Account, into a "State DSM Pool Account" operated by CSPDCL.

11.5. The State grid User which has to receive the money on account of Deviation charges would then be paid out from the State Deviation Pool Account within next two working days of receipt of payments in the "State Deviation Pool Account Fund".

11.6. Separate books of accounts shall be maintained for the principal component of charges for Deviation and Additional Charges.

11.7. If payments against the Deviation Charges are delayed by more than two days, i.e. beyond ten days from date of issue of State Deviation Account, the defaulting State grid Users shall have to pay simple interest @ 0.04% for each day of delay. The interest so collected shall be paid to the entities who had to receive the amount and whose payment has got delayed.

11.8. All Sellers/Buyers which had at any time during the previous quarter of the year failed to make payment of Charges for Deviation including Additional Charges for Deviation within the time specified in these regulations shall be required to open a Letter of Credit (LC) equal to 110% of its average payable weekly liability for Deviations in the previous quarter of the year, in favor of the pool account maintained by CSPDCL with a nationalized/scheduled commercial bank.

Provided that –

(a) If any State Grid user fails to make payment of Charges for Deviation including additional charges for deviation by the time specified in these regulations during the current quarter of the year, it shall be required to open a Letter of Credit equal to 110% of weekly outstanding liability in favor of "State DSM Pool Account"

(b) Letter of Credit amount shall be increased to 110% of the payable weekly liability for Deviation in any week during the quarter, if it exceeds the previous Letter of Credit amount by more than 50%.

Illustration: If the average payable weekly liability for Deviation of a State Grid user during Last Quarter of FY 2014-15 is Rs. 20 crore, the State Grid User shall open Letter of Credit for Rs. 22 crore in First Quarter of FY 2015-16. If the weekly payable liability during any week in First Quarter of FY 2015-16 is Rs. 35 crore which is more than 50% of the previous quarter of the year average payable weekly liability of Rs. 30 Crore, the concerned State Grid User shall increase the LC amount to Rs. 38.5 Crore (1.1*35.0) by adding Rs. 16.5 Crore.

(c) In case of failure to pay into the "State Deviation Pool Account Fund" within the specified time of10 days from the date of issue of statement of charges for Deviations, the CSPDCL shall be entitled to encash the Letter of Credit of the concerned entity to the extent of the default and the concerned entity shall recoup the Letter of Credit amount within 3 working days.

(d) If necessary, the CSPDCL shall initiate suitable action against defaulting entities under section 56 of the Act 2003 and other action as per relevant provisions of the Act as applicable from time to time. The responsibility of ensuring collection of outstanding dues from the Buyers shall be of CSPDCL

## 12. POWER TO RELAX

The Commission, for reasons to be recorded in writing, may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

## 13. SAVINGS AND REPEAL

13.1. Nothing in these Regulations shall be deemed to limit or otherwise impede the inherent power of the Commission to revise/review and make such orders as may be necessary, in the absence of sufficient data, to meet ends of justice or to prevent abuses of the process of the Commission.

13.2. Nothing in these Regulations shall impede the Commission from adopting, in conformity with the provisions of the Act, a procedure, which is at variance with any of the provisions of these Regulations, if the Commission, in view of the special circumstances of a matter or class of matters, and for reasons to be recorded in writing, deems it necessary or expedient for dealing with such a matter or class of matters.

## 14. POWER TO REMOVE DIFFICULTIES

If any difficulty arises in giving effect to any of the provisions of these regulations, the Commission may, of its own motion or otherwise by an order and after giving a reasonable opportunity to those likely to be affected by such order, make such provisions, not inconsistent with these regulations or the Act, as may appear to be necessary for removing those difficulties.

By order of the Commission,

Sd/-
**(P. N. Singh)**
Secretary.

**Schedule –A**

The Charges for deviation applicable for State grid user-

(a) Inter-State open access transactions-The charges for deviation including additional charges for deviation shall be levied by considering 95% of the basic rates as specified in clause (d) below when these charges are receivable to the State Grid Users, as per regulation 6 & 7 and the charges for deviation shall be levied by considering 105% of the basic rates as specified in clause (d) below, when these charges are payable by the State Grid Users, as per regulation 6 & 7.

(b) Intra-State open access transactions-The charges for deviation including additional charges for deviation shall be levied by considering the basic rates as specified in clause (d) below when these charges are receivable to the State Grid Users, as per regulation 6 & 7 and the charges for deviation shall be levied by considering the basic rates as specified in clause (d) below, when these charges are payable by the State Grid Users, as per regulation 6 & 7.

(e) Entities availing intra-State open access as well as inter-State open access-The charges for deviation including additional charges for deviation shall be levied by considering 95% of the basic rates as specified in clause d) below when these charges are receivable to the State Grid Users, as per regulation 6 & 7 and the charges for deviation shall be levied by considering 105% of the basic rates as specified in clause (d) below, when these charges are payable by the State Grid Users, as per regulation 6 & 7

(d) Basic Rate of Charges for Deviation- It shall be as per the regulations and its amendments as notified by the CERC or the Commission. Presently, the basic rates of charges for deviation as per the CERC DSM Regulation 2014 are as following:

| Average Frequency of the time block(Hz) | | Basic Rate of Charges for Deviation |
|---|---|---|
| Below | Not Below | Paise/kWh |
| | 50.05 | 0.00 |
| 50.05 | 50.04 | 35.60 |
| 50.04 | 50.03 | 71.20 |
| 50.03 | 50.02 | 106.80 |
| 50.02 | 50.01 | 142.40 |
| 50.01 | 50.00 | 178.00 |
| 50.00 | 49.99 | 198.84 |
| 49.99 | 49.98 | 219.68 |
| 49.98 | 49.97 | 240.52 |
| 49.97 | 49.96 | 261.36 |
| 49.96 | 49.95 | 282.20 |
| 49.95 | 49.94 | 303.04 |
| 49.94 | 49.93 | 323.88 |
| 49.93 | 49.92 | 344.72 |
| 49.92 | 49.91 | 365.56 |
| 49.91 | 49.90 | 386.40 |
| 49.90 | 49.89 | 407.24 |
| 49.89 | 49.88 | 428.08 |
| 49.88 | 49.87 | 448.92 |
| 49.87 | 49.86 | 469.76 |
| 49.86 | 49.85 | 490.60 |
| 49.85 | 49.84 | 511.44 |
| 49.84 | 49.83 | 532.28 |
| 49.83 | 49.82 | 553.12 |
| 49.82 | 49.81 | 573.96 |
| 49.81 | 49.80 | 594.80 |
| 49.80 | 49.79 | 615.64 |
| 49.79 | 49.78 | 636.48 |
| 49.78 | 49.77 | 657.32 |

| Average Frequency of the time block(Hz) | | Basic Rate of Charges for Deviation |
|---|---|---|
| Below | Not Below | Paise/kWh |
| 49.77 | 49.76 | 678.16 |
| 49.76 | 49.75 | 699.00 |
| 49.75 | 49.74 | 719.84 |
| 49.74 | 49.73 | 740.68 |
| 49.73 | 49.72 | 761.52 |
| 49.72 | 49.71 | 782.36 |
| 49.71 | 49.70 | 803.20 |
| 49.70 | | 824.04 |

(Charges for deviation for each 0.01 Hz step is equivalent to 35.60 Paise/kWh in the frequency range of 50.05-50.00 Hz, and 20.84 Paise/kWh in frequency range 'below 50 Hz' to 'below 49.70 Hz')

**Annexure-I**

**Methodologies for the computation of Charges of Deviation and Additional Charges for deviation for crossing the volume limits specified for the under injection/ over-drawal by seller / Buyer**

1. When the grid frequency is 49.7 Hz and above

A. When Dtb i.e. Deviation from schedule in a time block in MW is less than (+/-12% of the schedule in MW or 150 MW whichever is lower in each time block, Dtb to be payable by the intra-state entity at normal Charges for Deviation;

B. When Dtb i.e. Deviation from schedule in a time block in MW is more than (+/-)12% of the schedule in MW or 150 MW whichever is lower in each time block

(i) Dtb = D0 + D12/150

Where

D0 = (+/-)12% of Scheduled Generation (SG) or 150 MW whichever is lower,

D12/150 = Deviation in excess of (+/-)12% of the SG or 150 MW, whichever is lower in each time block

(ii) D12/150 = Dtb– D0

(iii) The Charges for Deviation corresponding to Dtb shall be payable by the Intra State Entity at normal Charges of Deviation; In addition, graded Additional Charges for the Deviation for D12/150 shall be payable by the intra-state entity for over drawal/under injection for crossing the volume limit on the basis of percentage term or MW terms as the case may @ 20%, 40%, 100% of Charge of Deviation for the incremental deviation in each slab. The same is illustrated as under:

Illustrations "A" When 12% of Schedule is less than or equal to 150 MW

| Category | Additional Charges for Deviation |
|---|---|
| Dtb is above12% and up to 15% of schedule in MW | 50 x (Dtb- 12% of schedule) x Charge for Deviation corresponding to average grid frequency of the time block. |
| Dtb is above15% and up to 20% of schedule in MW | (100 x (Dtb- 15% of schedule) + 1.50 x schedule)x Charge for Deviation corresponding to average grid frequency of the time block. |
| Dtb is above20% | (250 x (Dtb- 20% of schedule) + 6.50 x schedule)x Charge for Deviation corresponding to average grid frequency of the time block |

Illustrations "B" When 12% of Schedule is more than 150 MW.

| Category | Additional Charges for Deviation |
|---|---|
| Dtb is above 150 MW and up to 200 MW | 50 x (Dtb- 150) x Charge for Deviation corresponding to average grid frequency of the time block. |
| Dtb is above200 MW and up to 250 MW | (100 x (Dtb- 200) + 2500) x Charge for Deviation corresponding to average grid frequency of the time block. |
| Dtb is above 250 MW | (250 x (Dtb- 250) + 7500) x Charge for Deviation corresponding to average grid frequency of the time block. |

2. When the grid frequency is below 49.7 Hz:

The charges for deviation corresponding to Dtb shall be payable by the intra-state entity at the Charge for Deviation corresponding to the grid frequency of "below 49.70 Hz". In addition, additional deviation charges for deviation for Dtb shall be payable by the intra-state entity at the Charge for Deviation corresponding to the grid frequency of "below 49.70 Hz".

**Annexure-II**

**Methodologies for the computation of Charges of Deviation and Additional Charges for deviation for crossing the volume limits specified for the over injection/ under drawal by seller / Buyer**

A. When Dtb i.e. Deviation from schedule in a time block in MW is less than (+/-) 12% of the schedule in MW or 150 MW, whichever is lower in each time block, Dtb to be Receivable by the intra-state entity at normal Charges for Deviation;

B. When Dtb i.e. Deviation from schedule in a time block in MW is more than (+/-) 12% of the schedule in MW or 150 MW, whichever is lower in each time block

(i) Dtb = D0 + D12/150

Where

D0 = (+/-) 12% of Scheduled Generation (SG) or 150 MW whichever is lower,

D12/150 = Deviation in excess of (+/-)12% of the SG or 150 MW, whichever is lower in each time block

(ii) D12/150 = Dtb– D0

C. The Charges for Deviation corresponding to D0 shall be receivable by the intra-state entity at normal Charges of Deviation or the ceiling rate whichever is lower; the intra-state entity shall not be entitled to any receivable for D12/150.

D. Additional Charges for the Deviation Dtb shall be payable by the intra-state entity for under drawal/ over injection when grid frequency is "50.10 Hz or above" in accordance with clause 7 of this Regulation.

संचालक, मुद्रण तथा लेखन सामग्री, छत्तीसगढ़ द्वारा शासकीय मुद्रणालय, रायपुर से मुद्रित तथा प्रकाशित - 2016.